

Fig. 1 is a schematic diagram of a prior art device 100. The device 100 includes a base 108 and a top layer 104. A central portion 106 of the device 100 is defined by a pair of vertical lines 114. A horizontal line 112 is positioned between the vertical lines 114. The device 100 is shown in a perspective view.

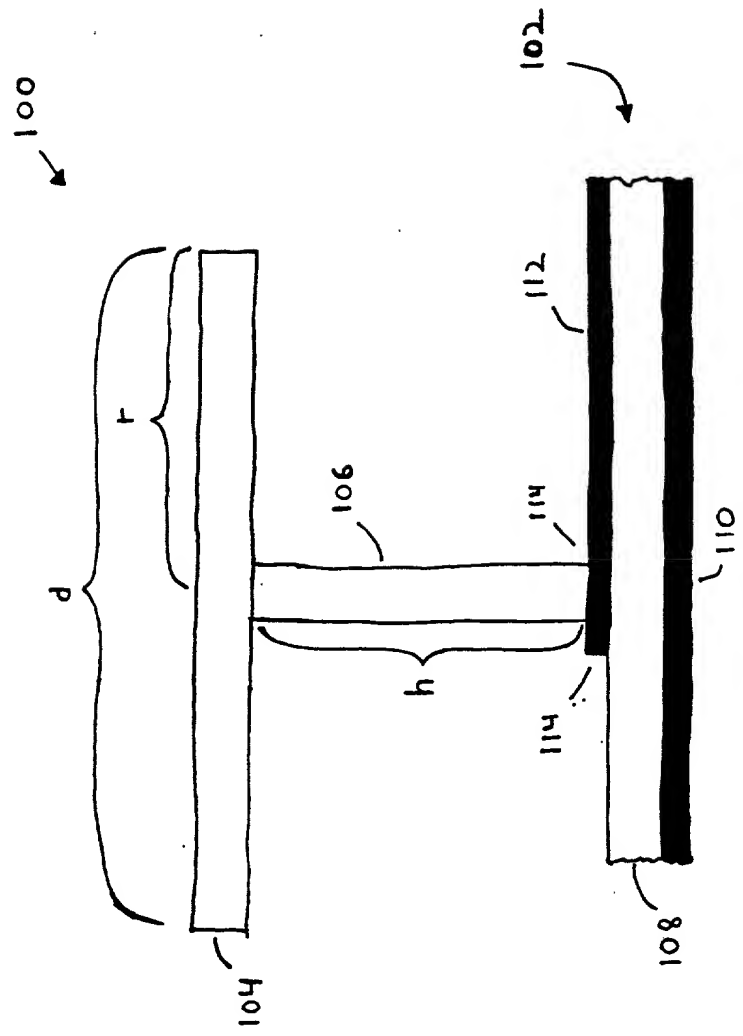
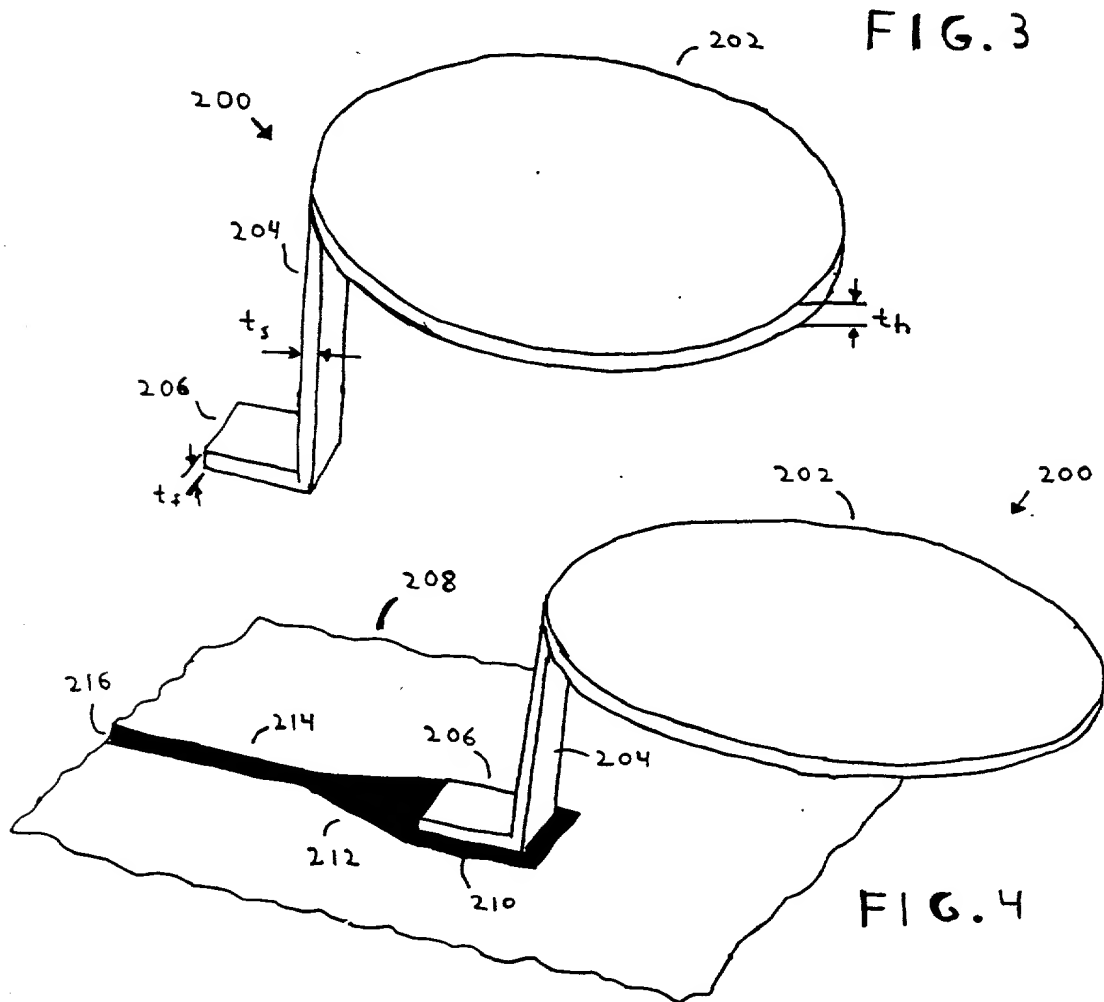
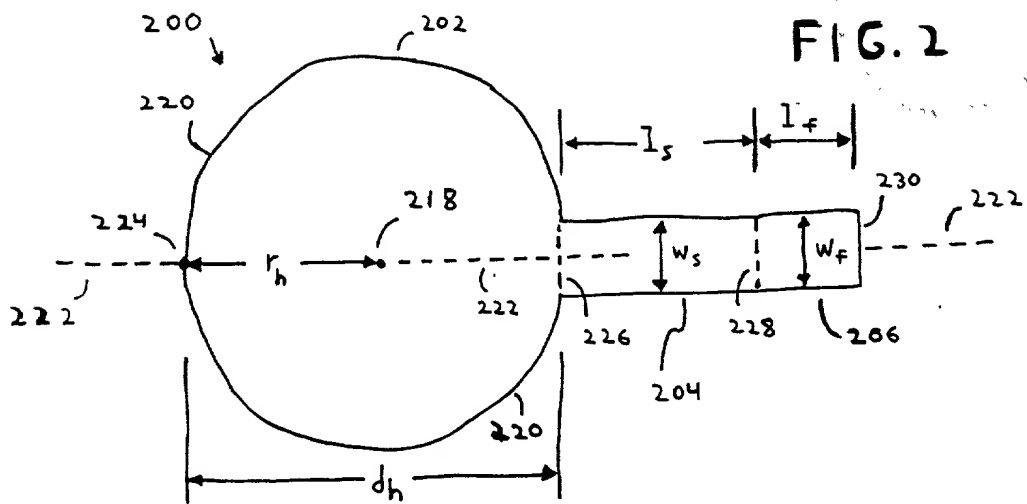
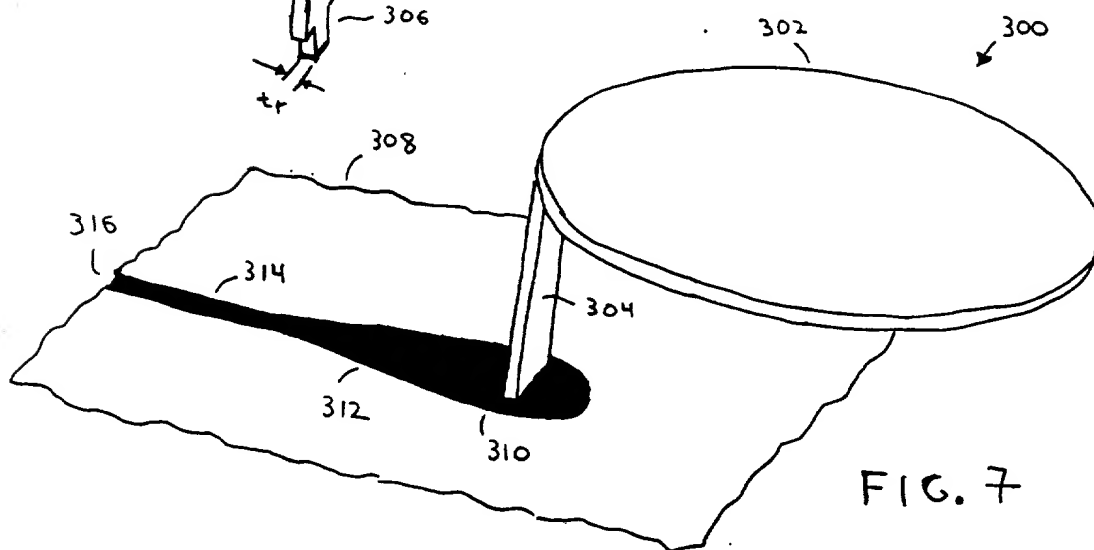
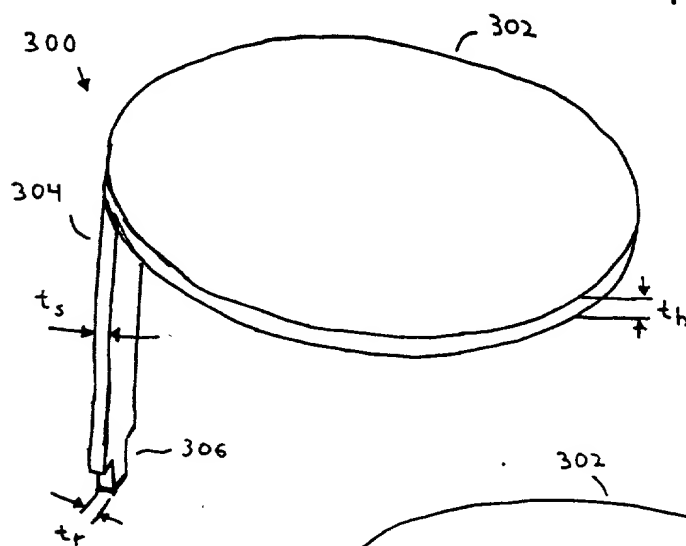
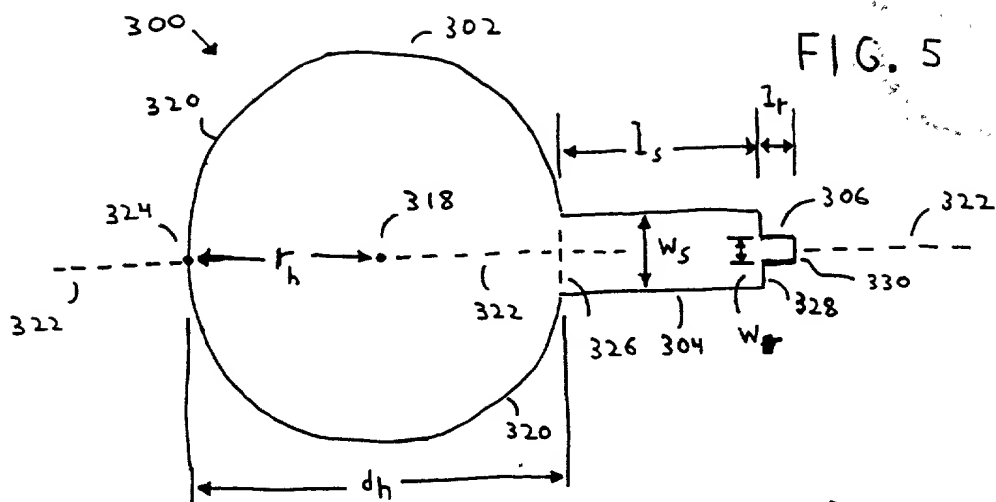
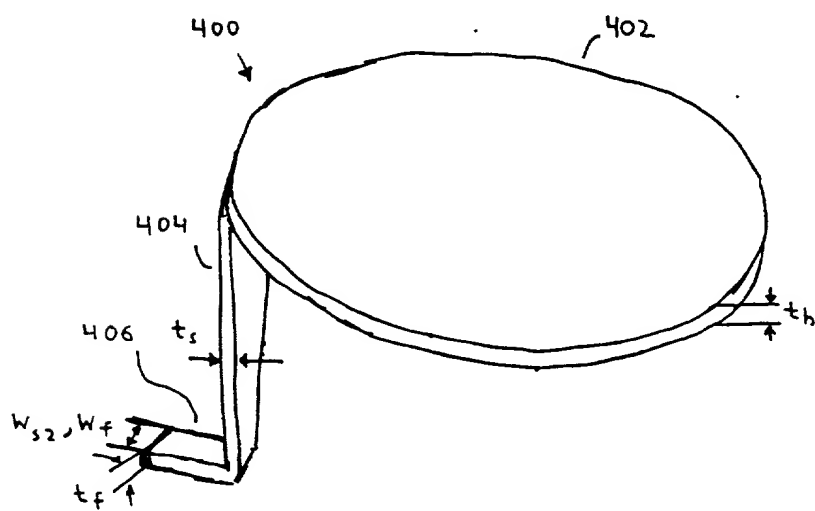
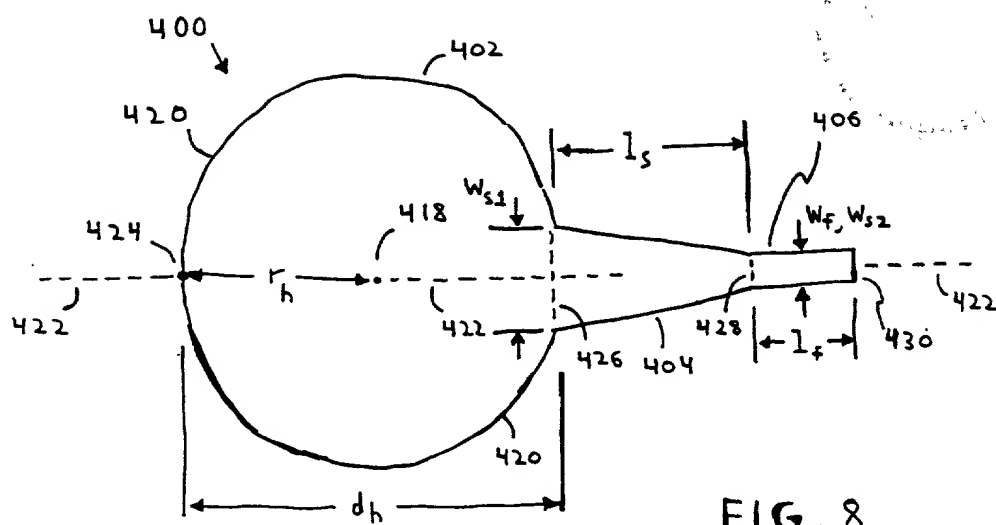


FIG. 1 PRIOR ART







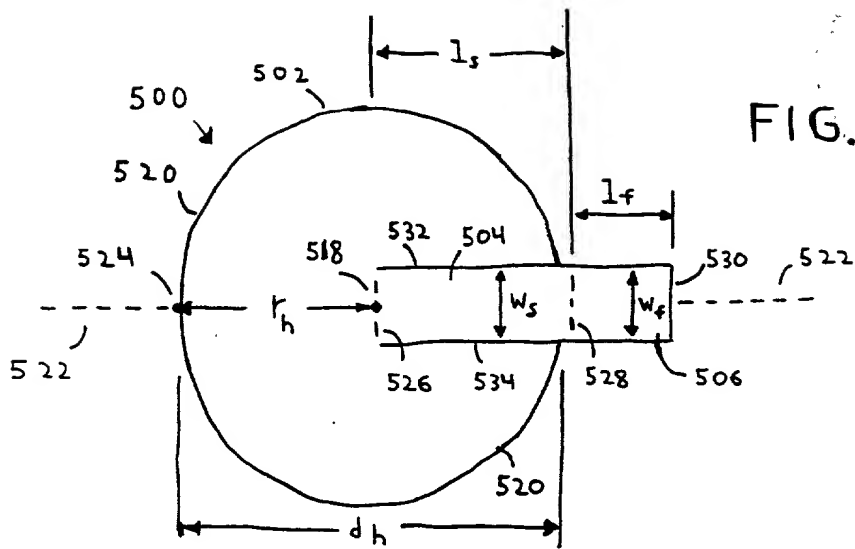


FIG. 10

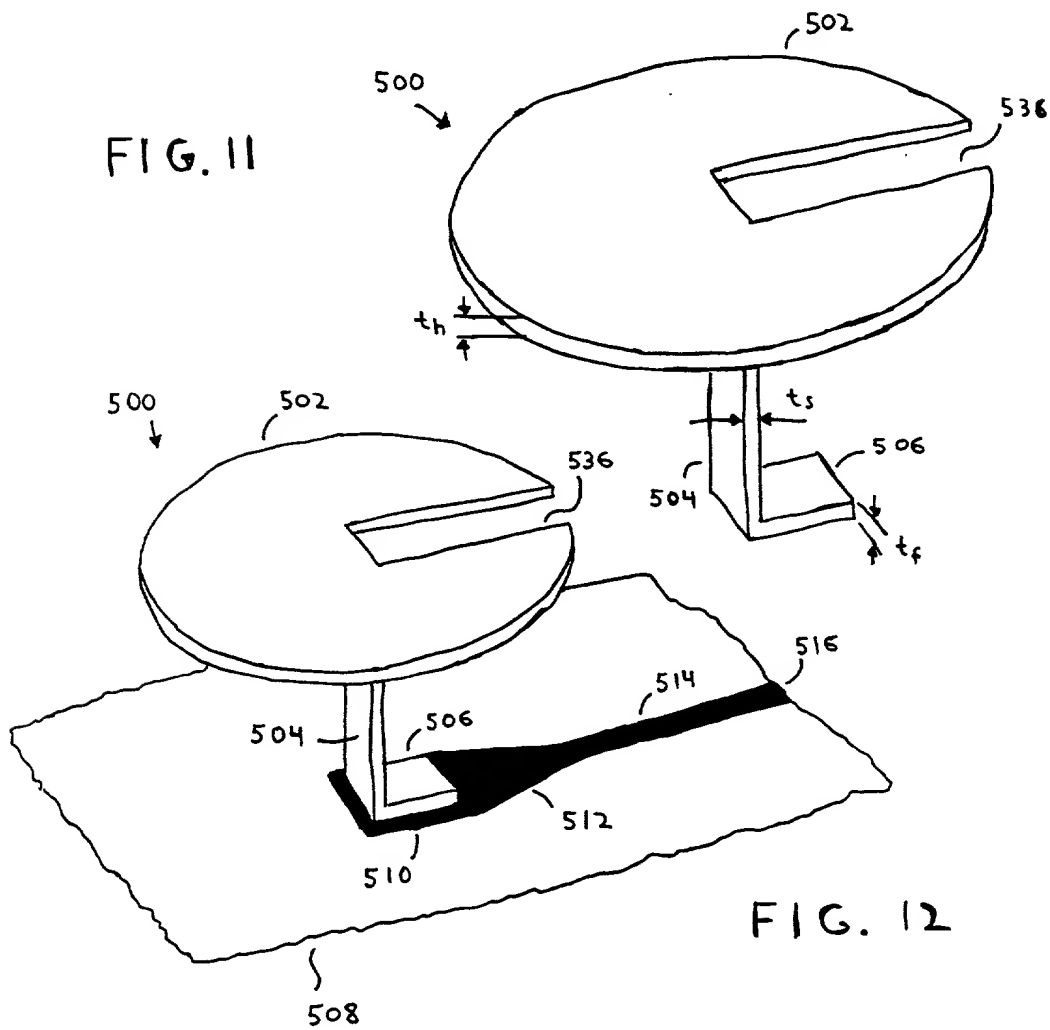


FIG. 12

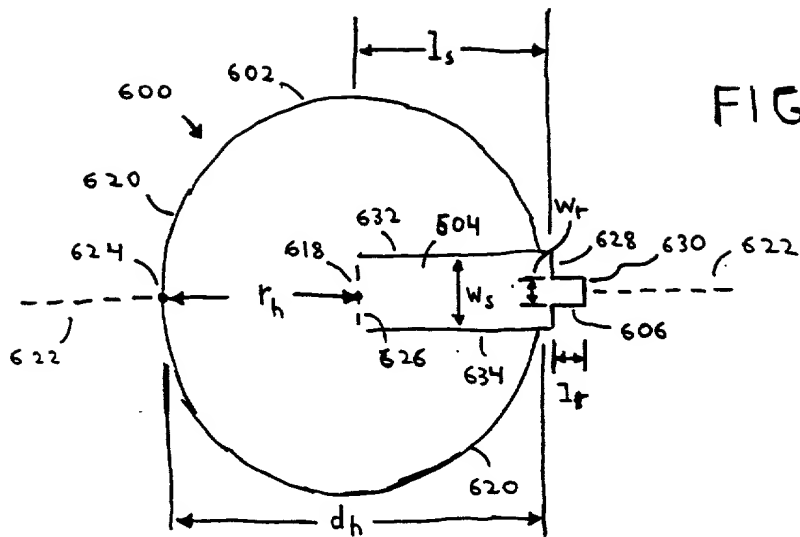


FIG. 13

FIG. 14

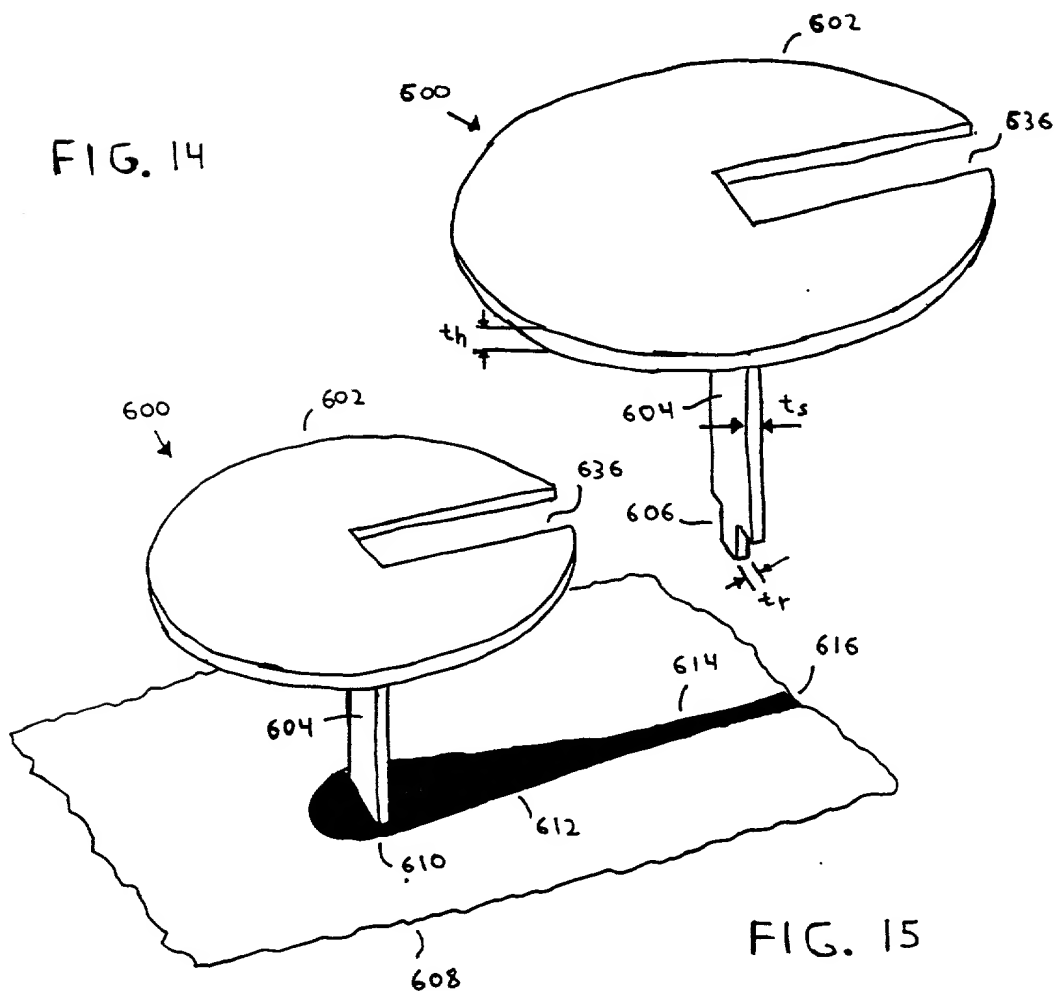
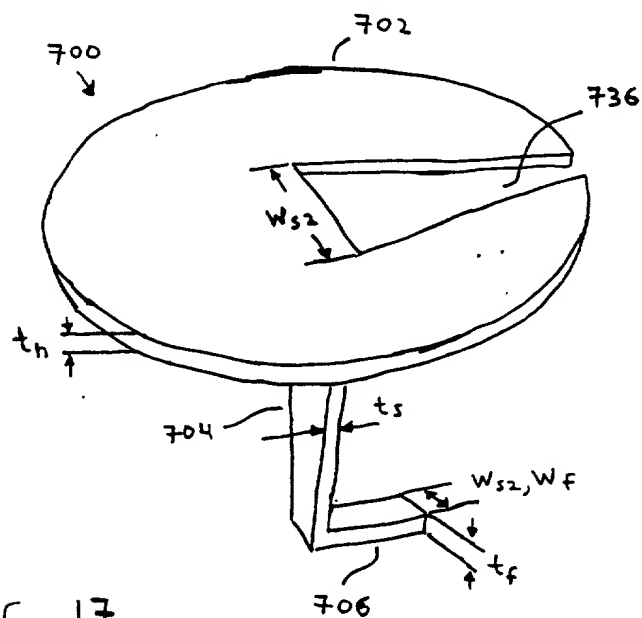
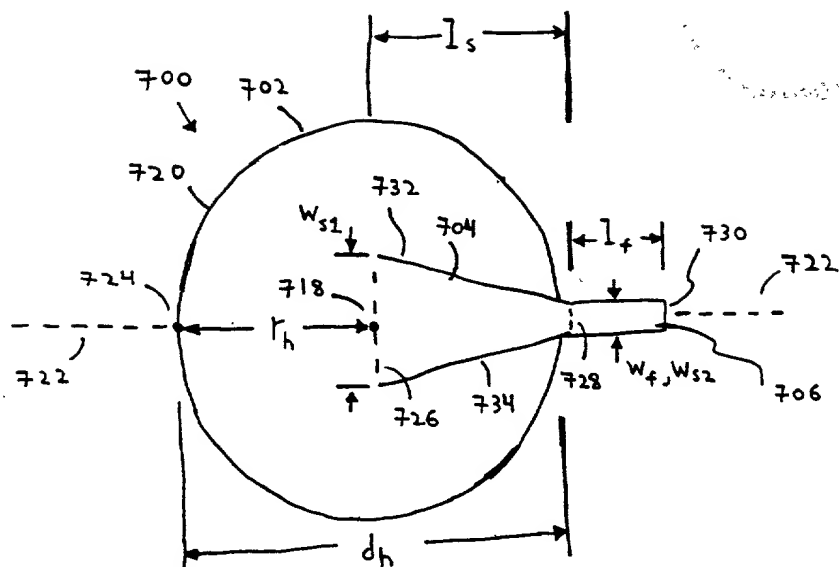


FIG. 15



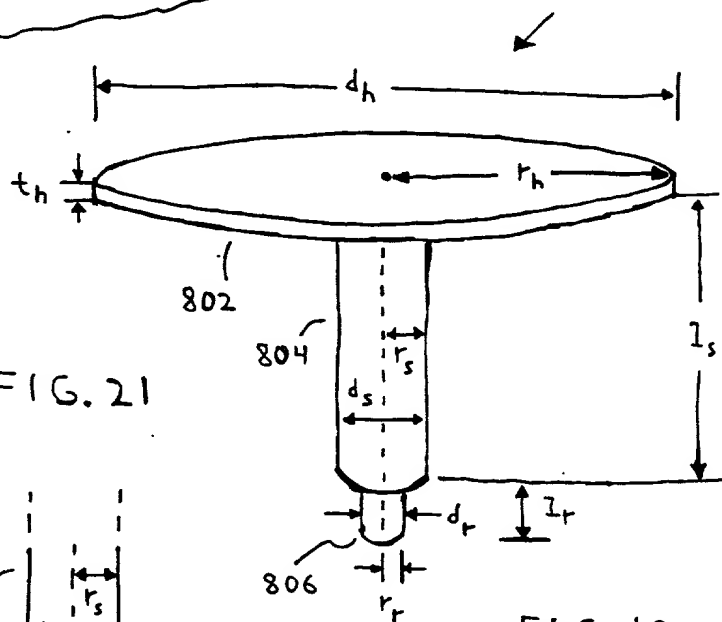
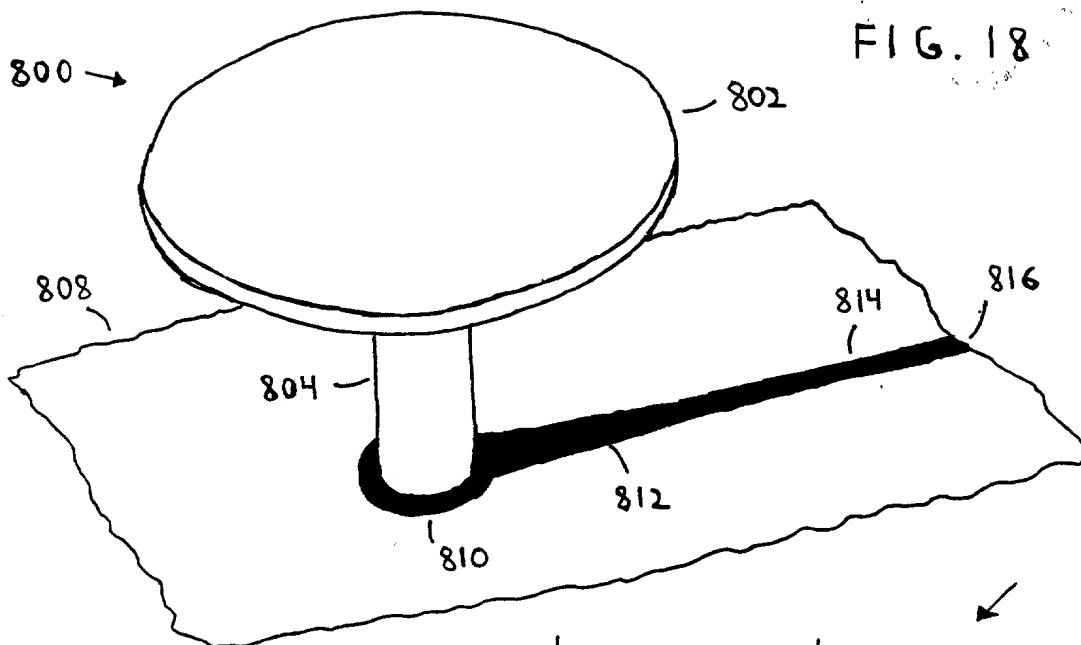


FIG. 20

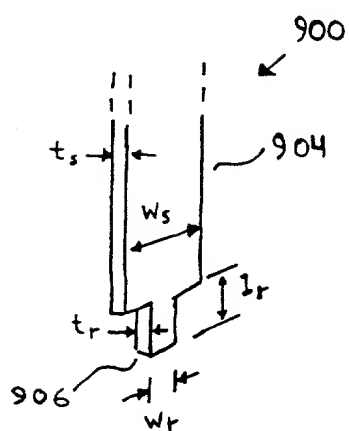


FIG. 21

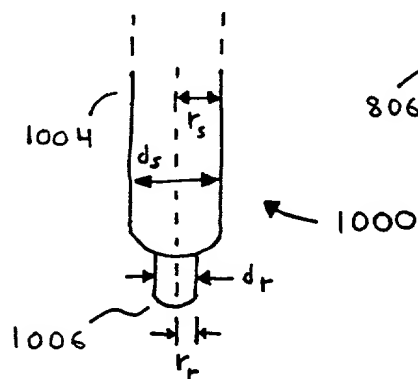


FIG. 19

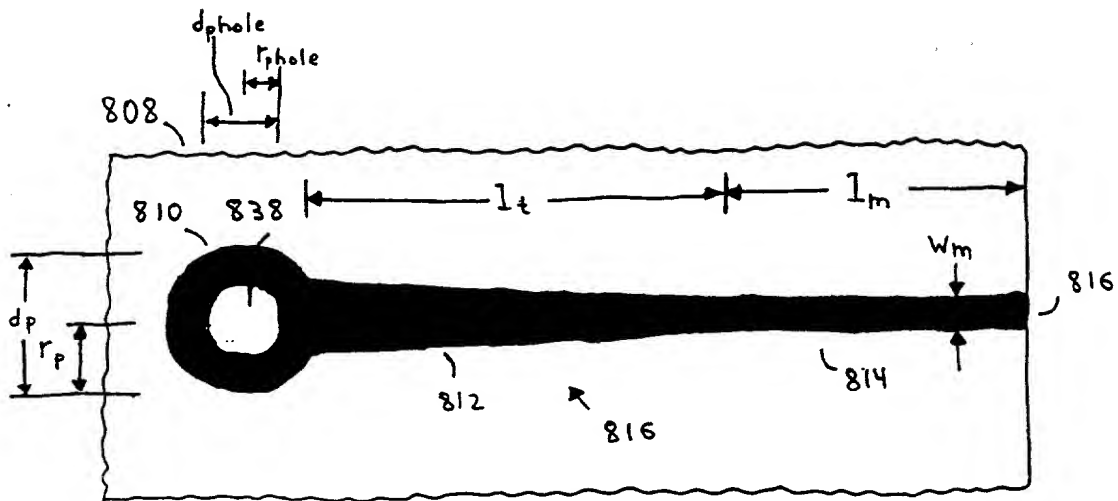


FIG. 22

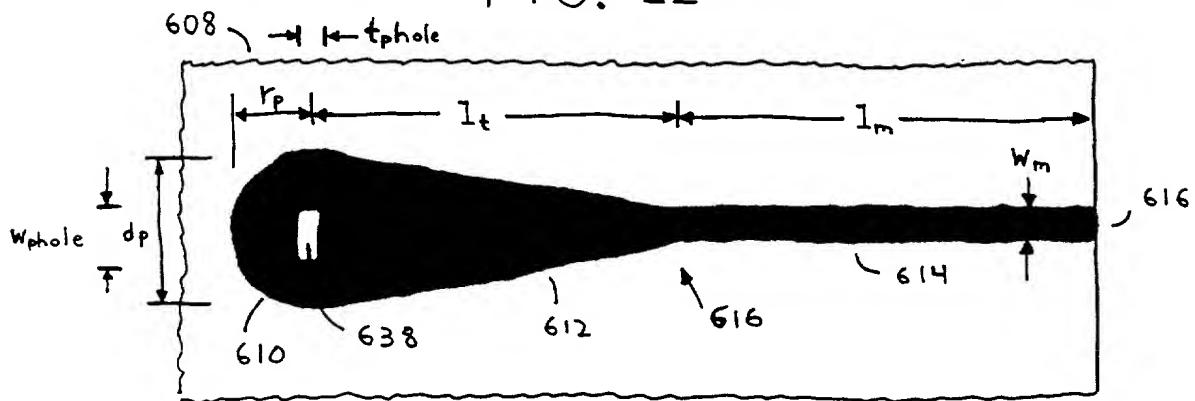


FIG. 23

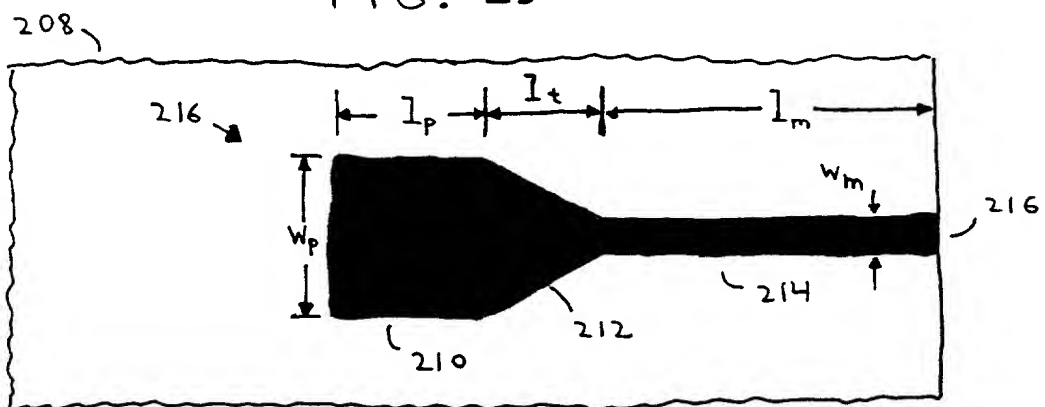


FIG. 24

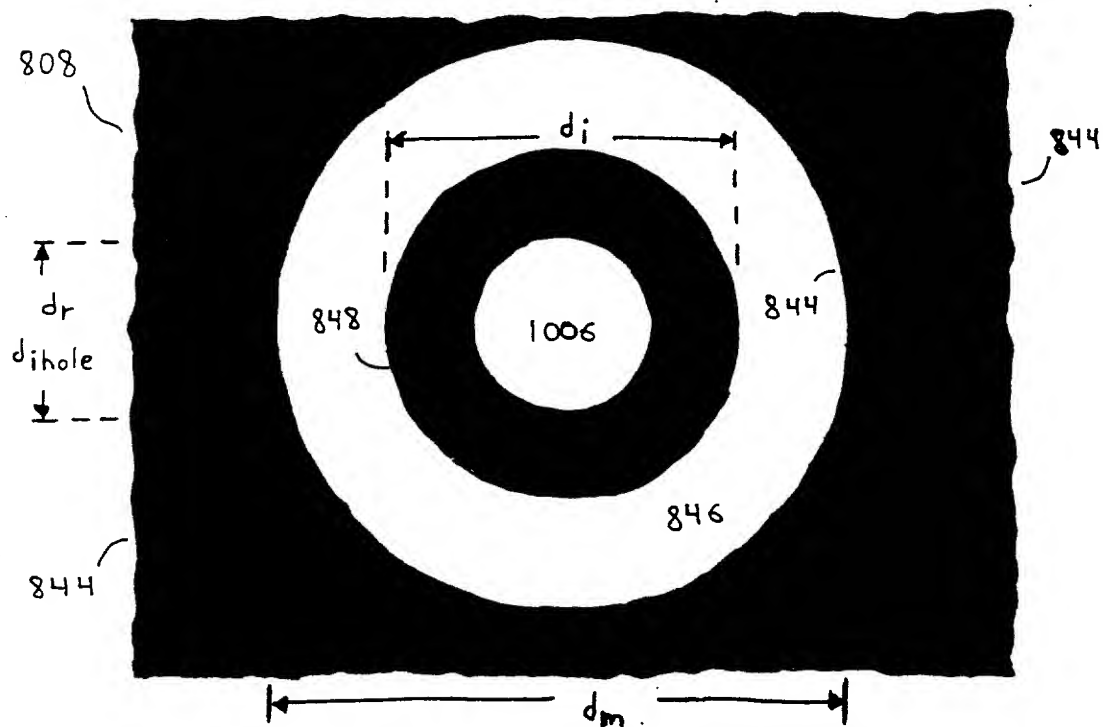
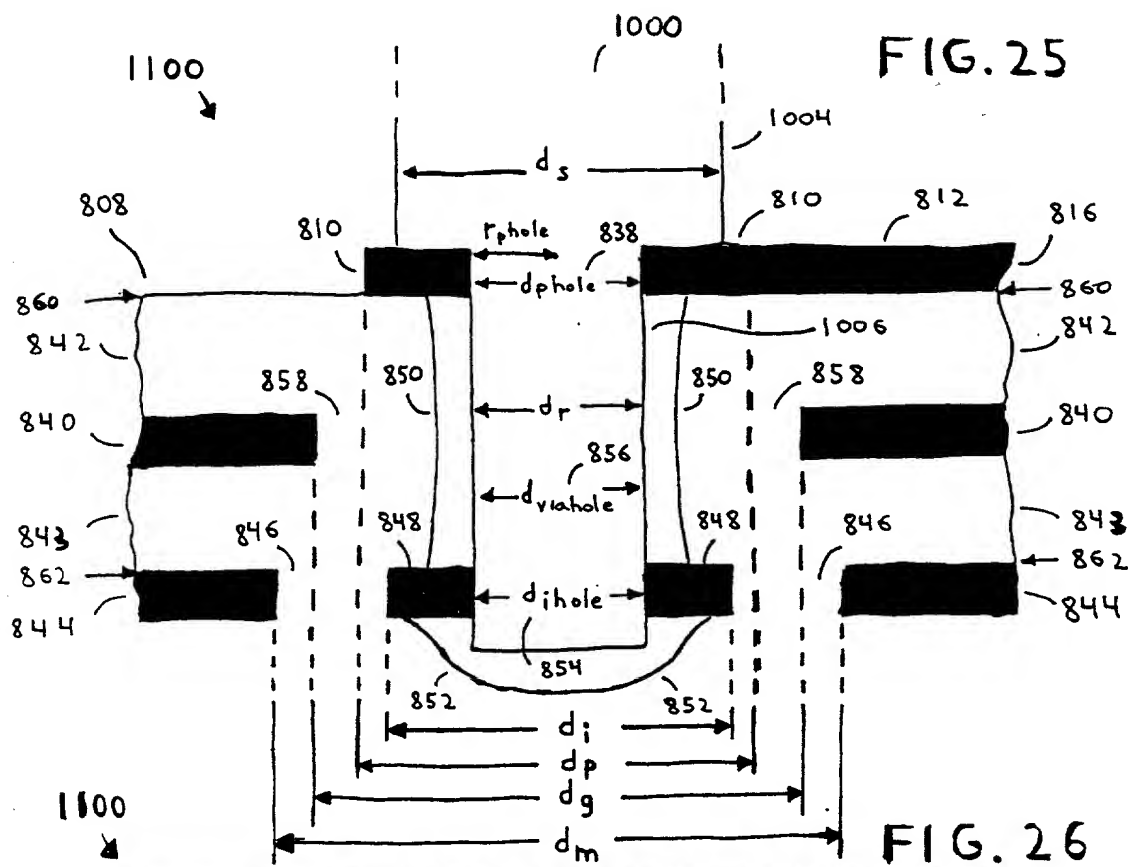
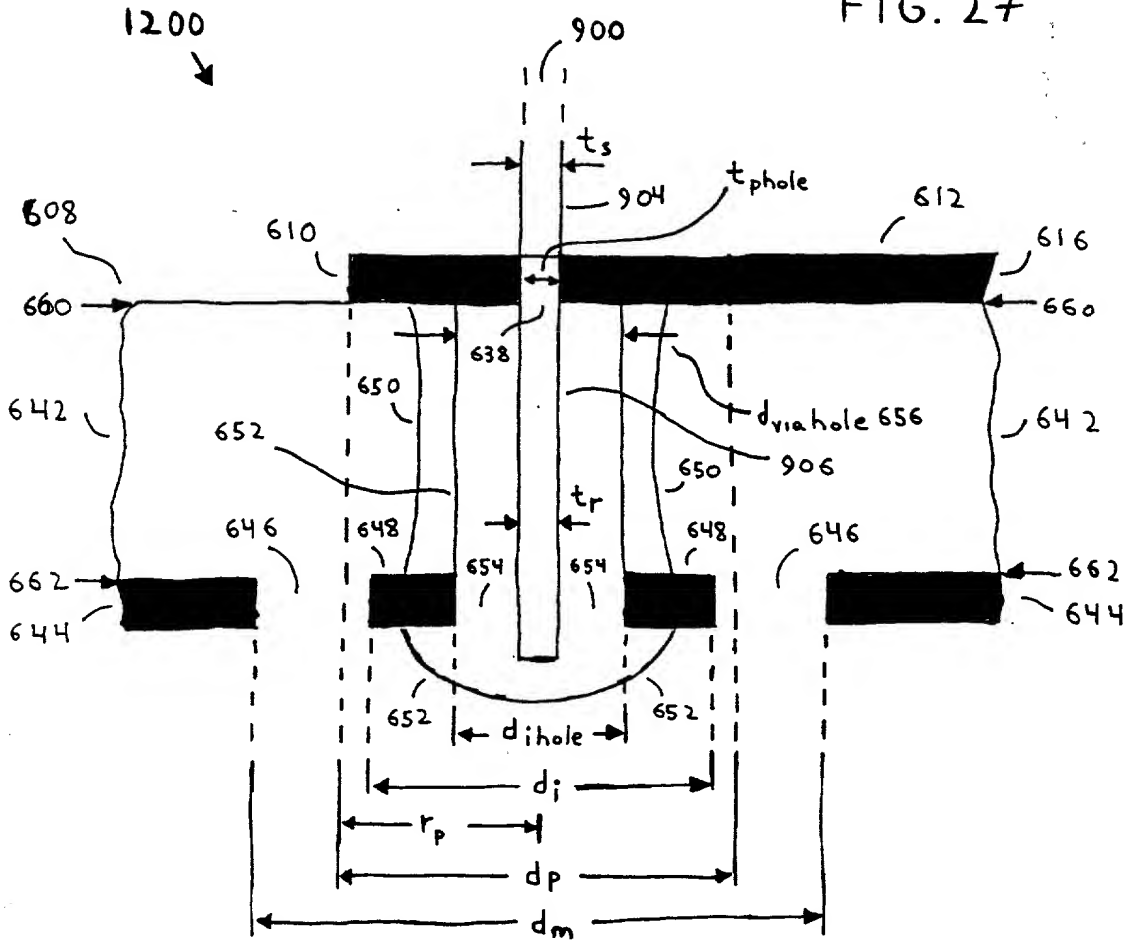


FIG. 27



Input Impedance

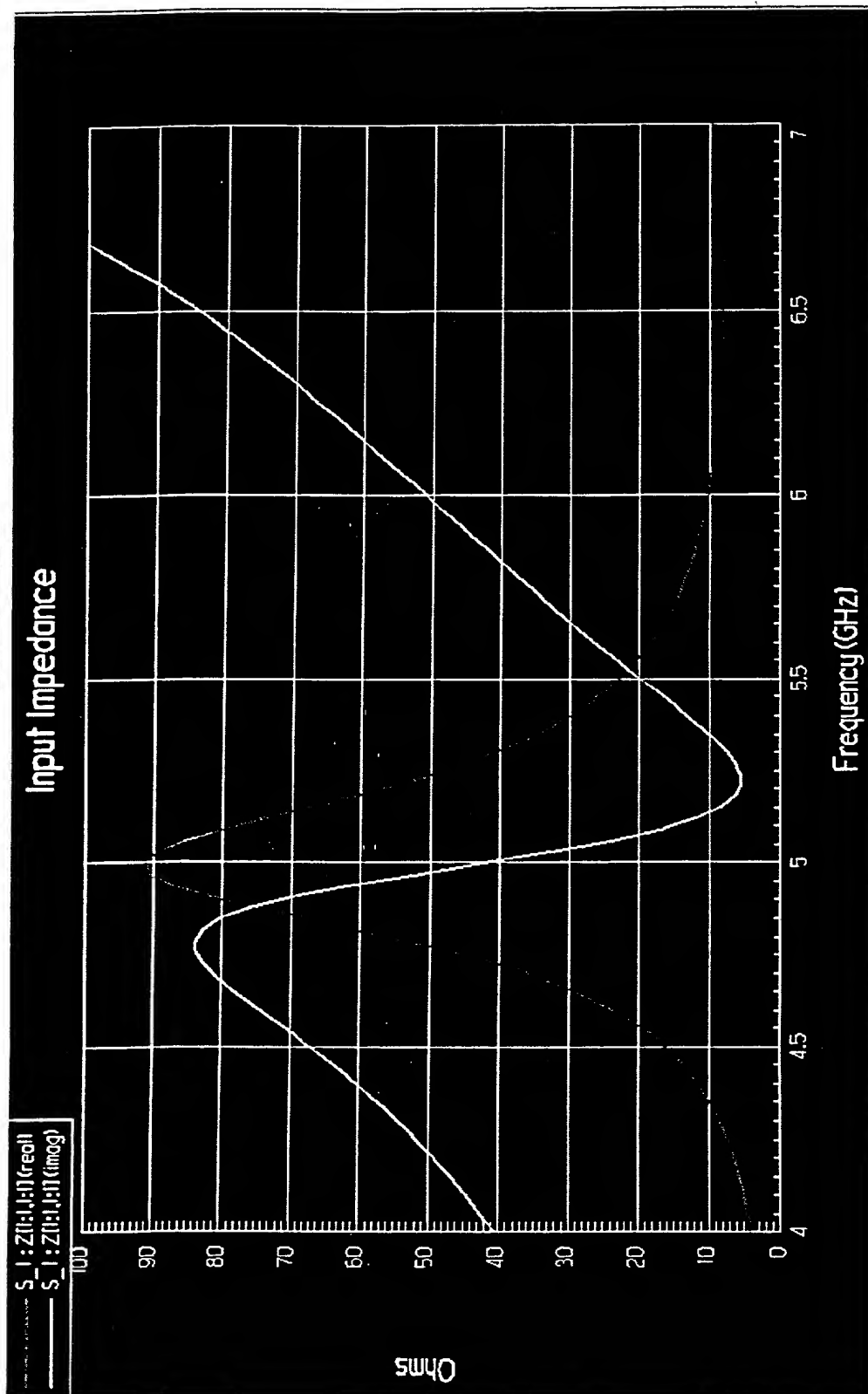


FIG. 28

50 ohm VSWR

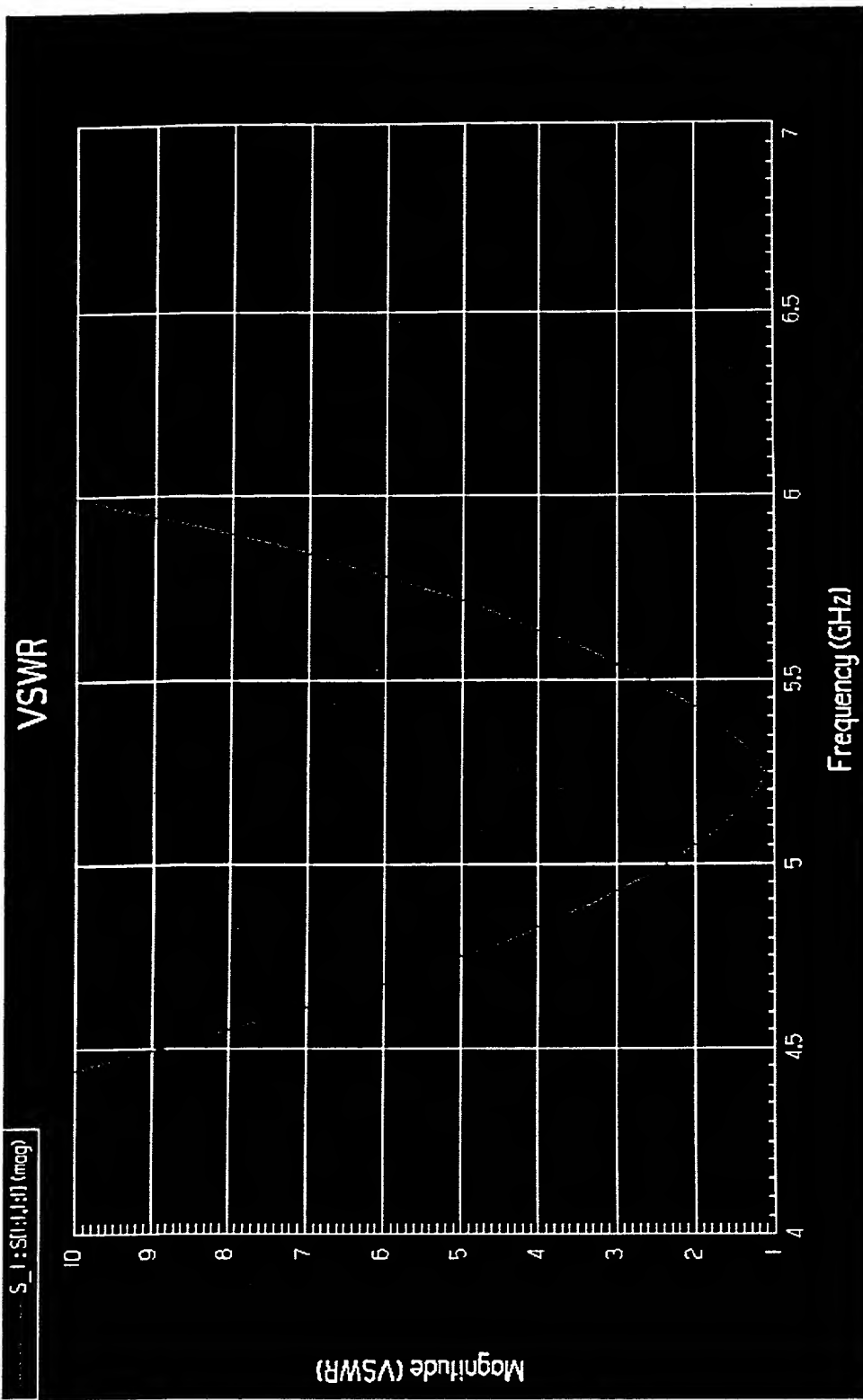


FIG. 29

50 ohm VSWR

50 ohm VSWR

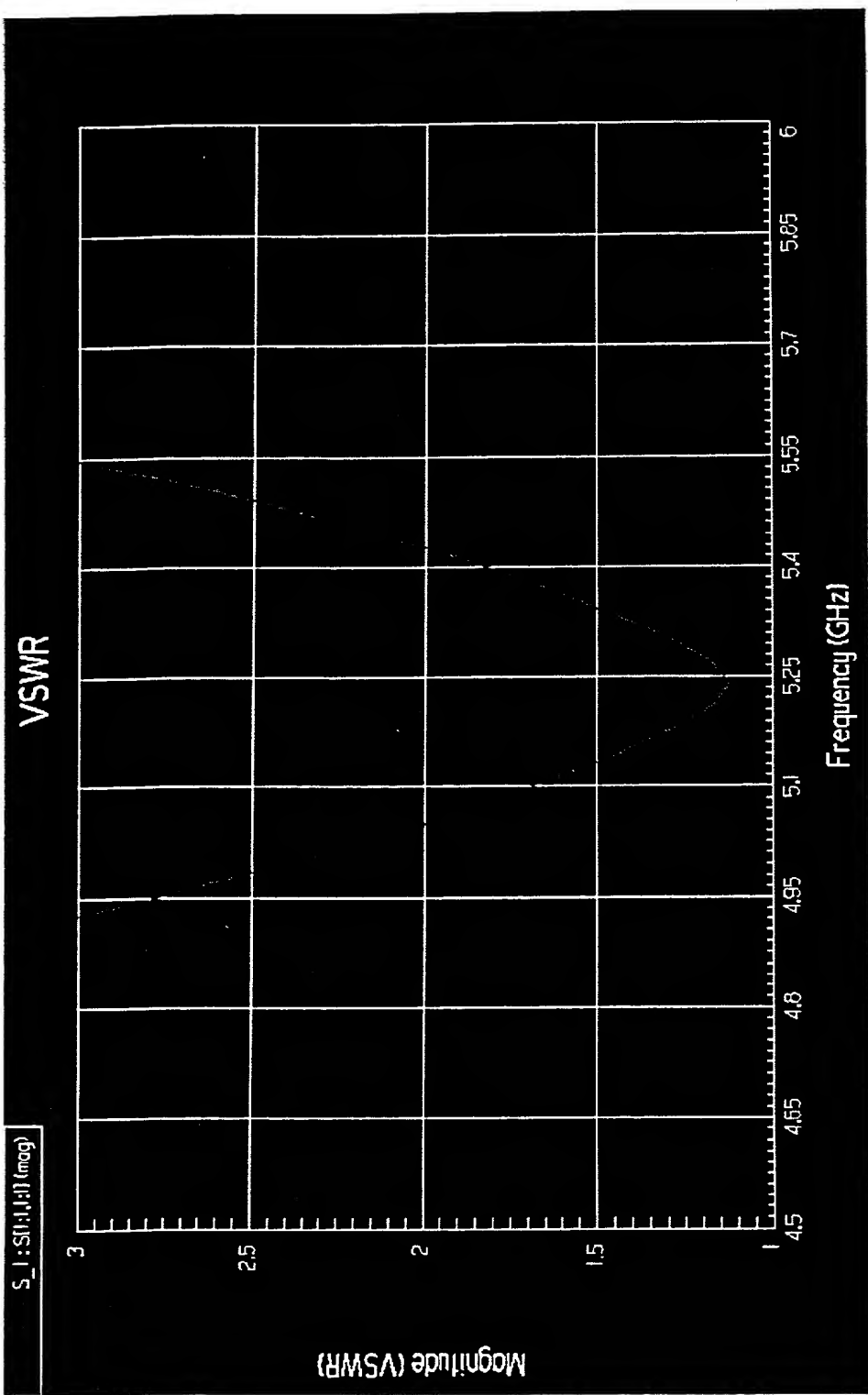


FIG. 30

[illegible]

FIG. 31

50 ohm VSWR

50 ohm VSWR

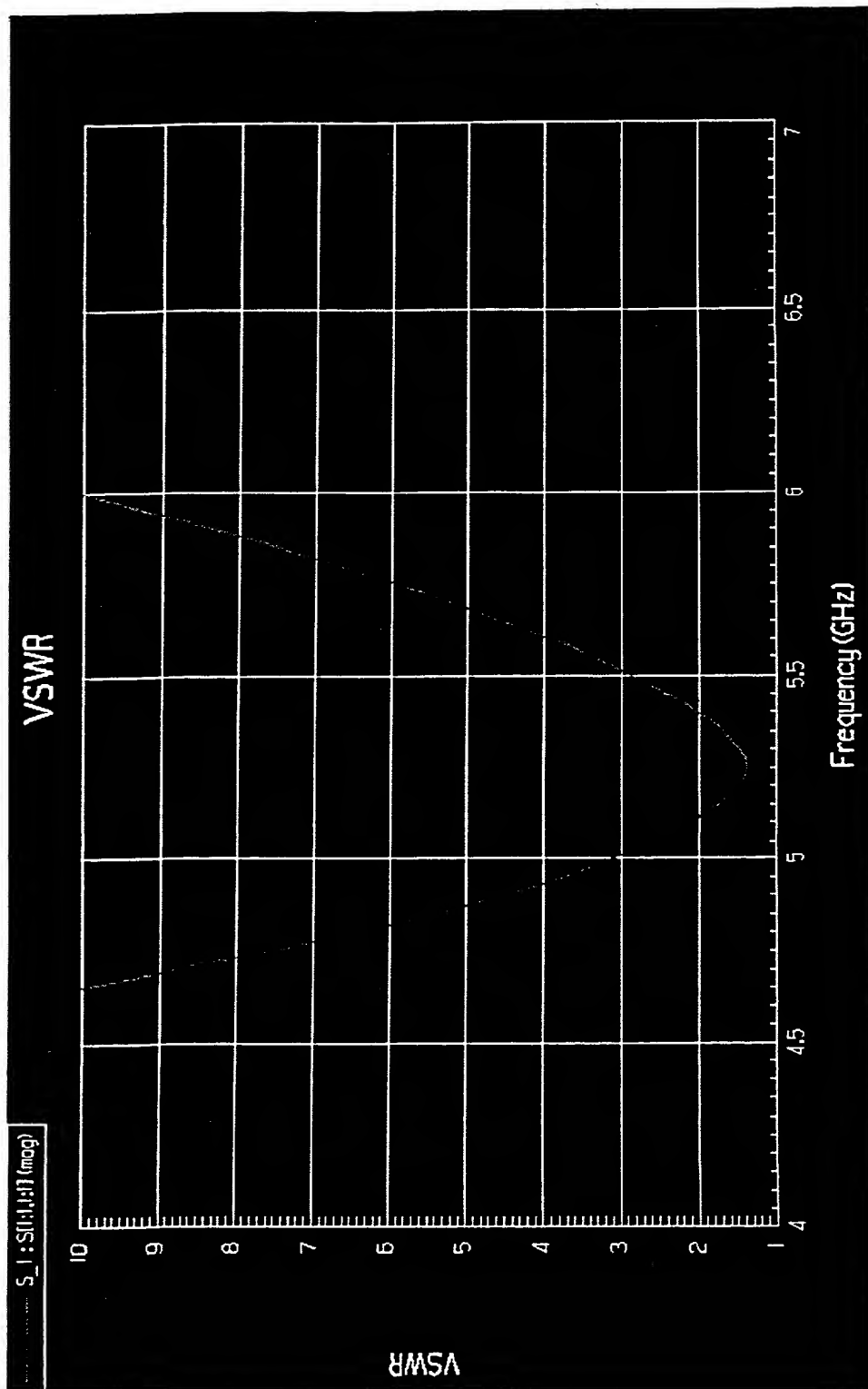


FIG. 32

50 ohm VSWR

50 ohm VSWR

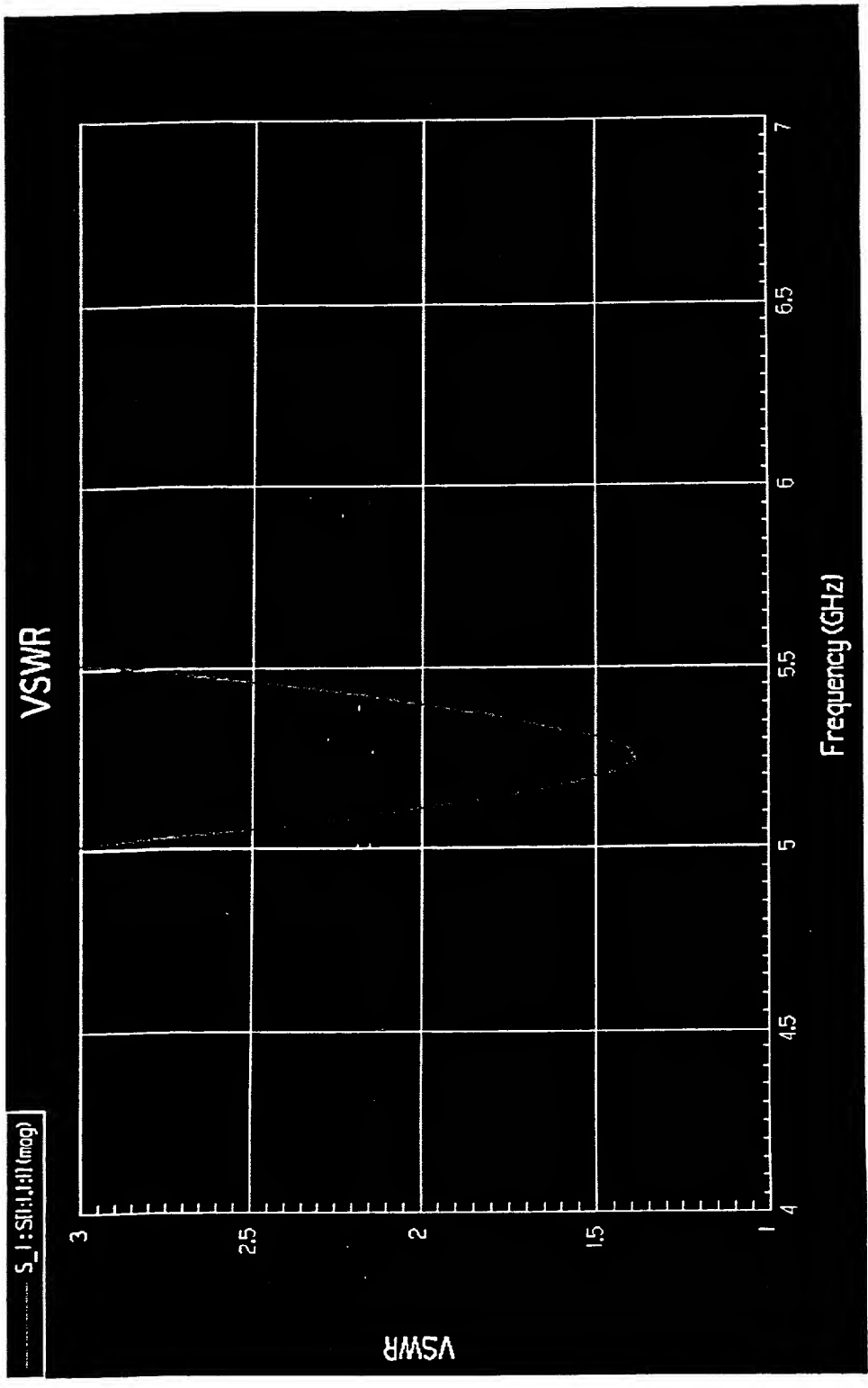


FIG. 33

Input Impedance

Impedance for Top Hat Monopole

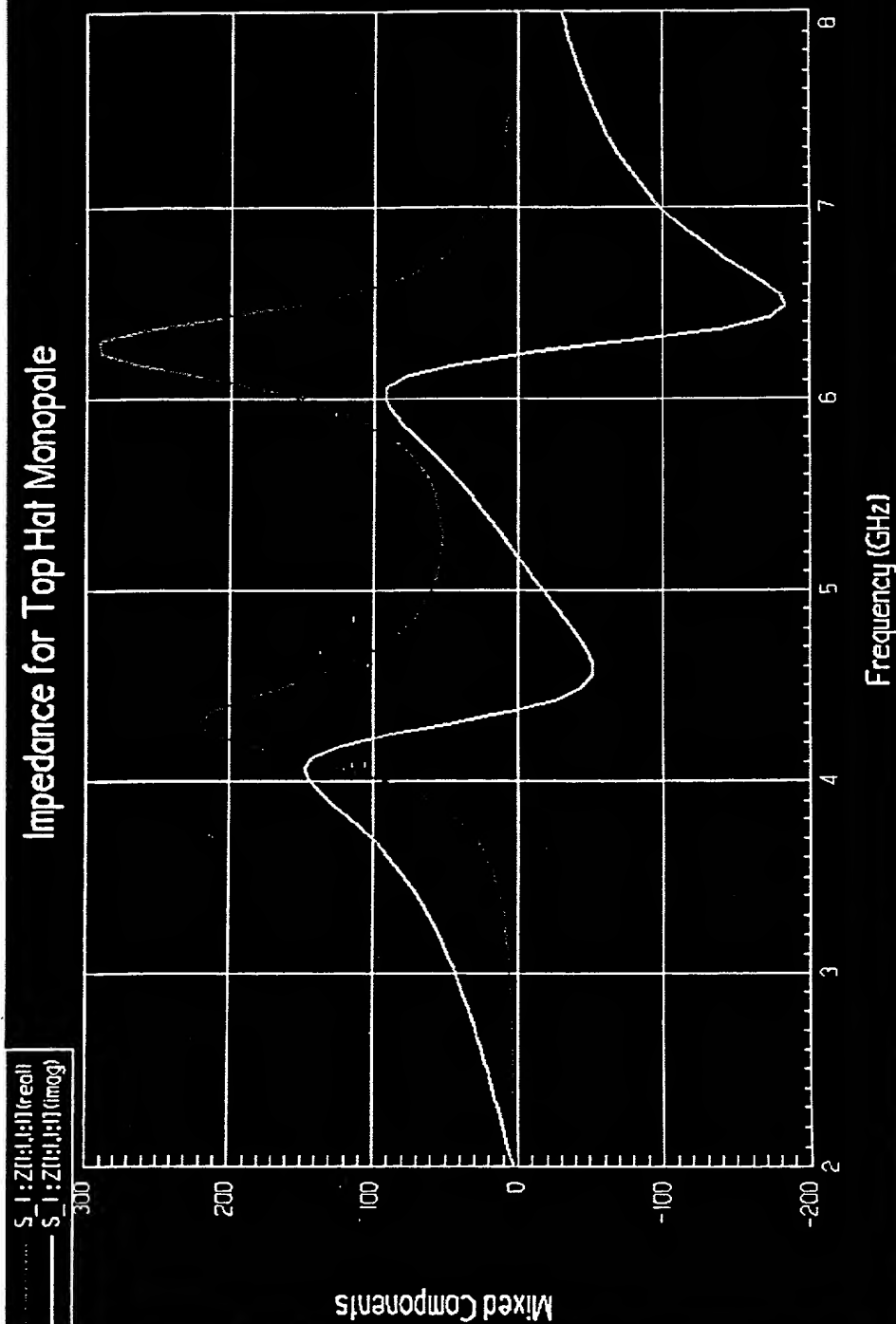


FIG. 34

1. The input impedance of the antenna is calculated using the following formula:

$$Z_{in} = \frac{1}{Y_{in}} = \frac{1}{Y_{ant} + Y_{ground}}$$
 where Y_{in} is the input admittance, Y_{ant} is the antenna admittance, and Y_{ground} is the ground admittance.

Input Impedance

Impedance for Top Hat Monopole

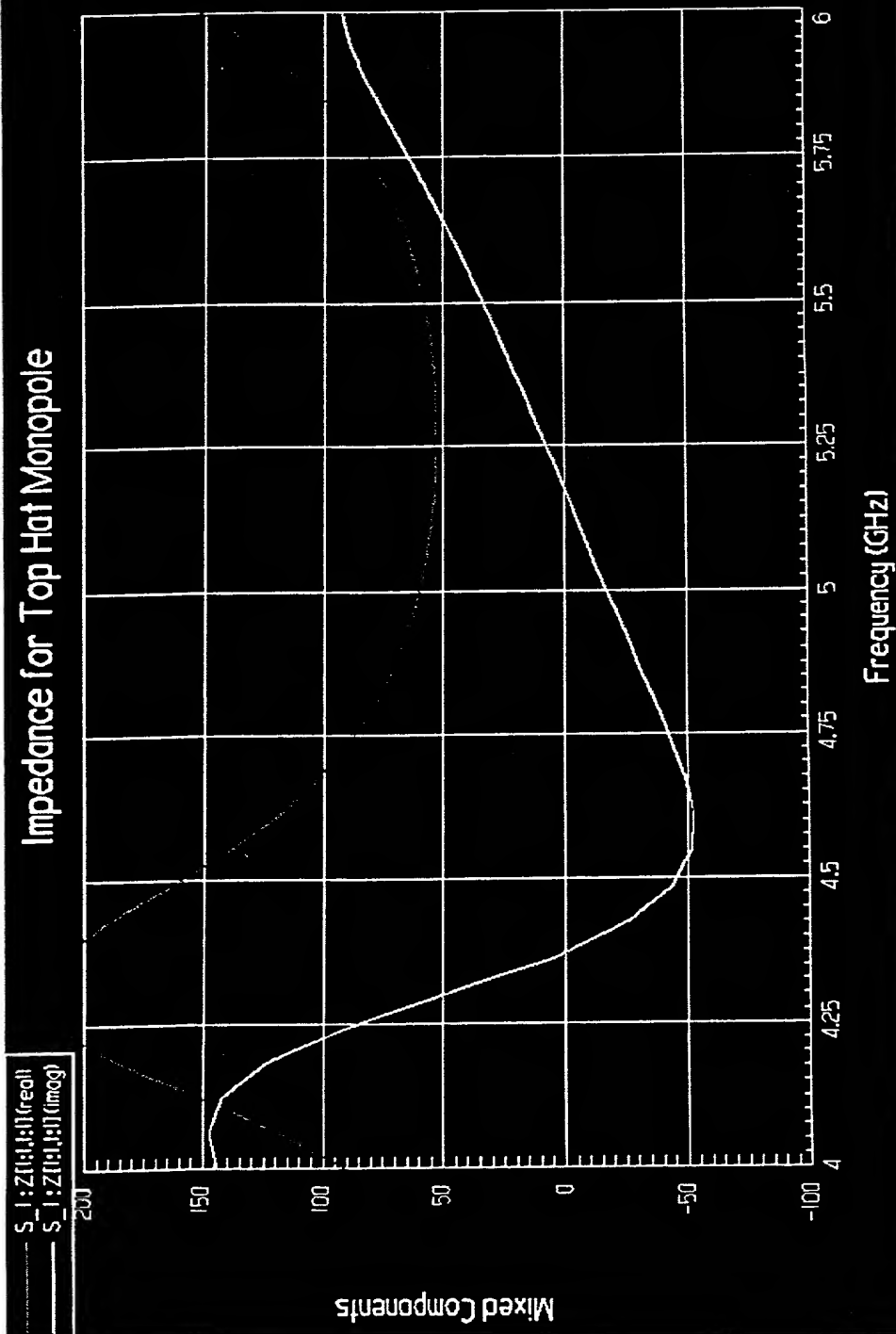


FIG. 35

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

50 ohm VSWR

$$(\delta_{\text{BW}})_{\text{Li}^{+}:\text{I}^{-}} = 1.5$$

VSWR for the Top Hat Monopole

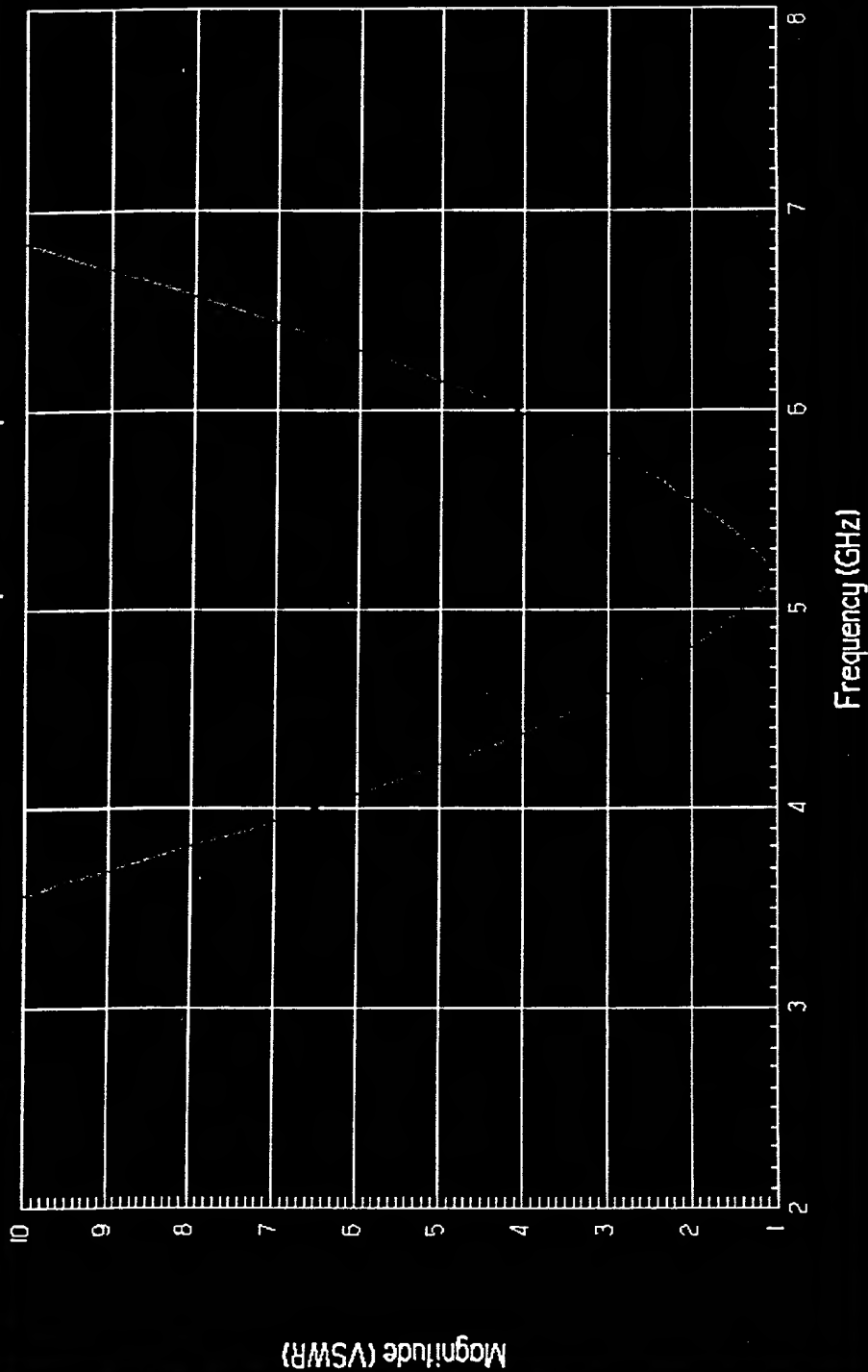


FIG. 36

50 ohm VSWR

50 ohm VSWR

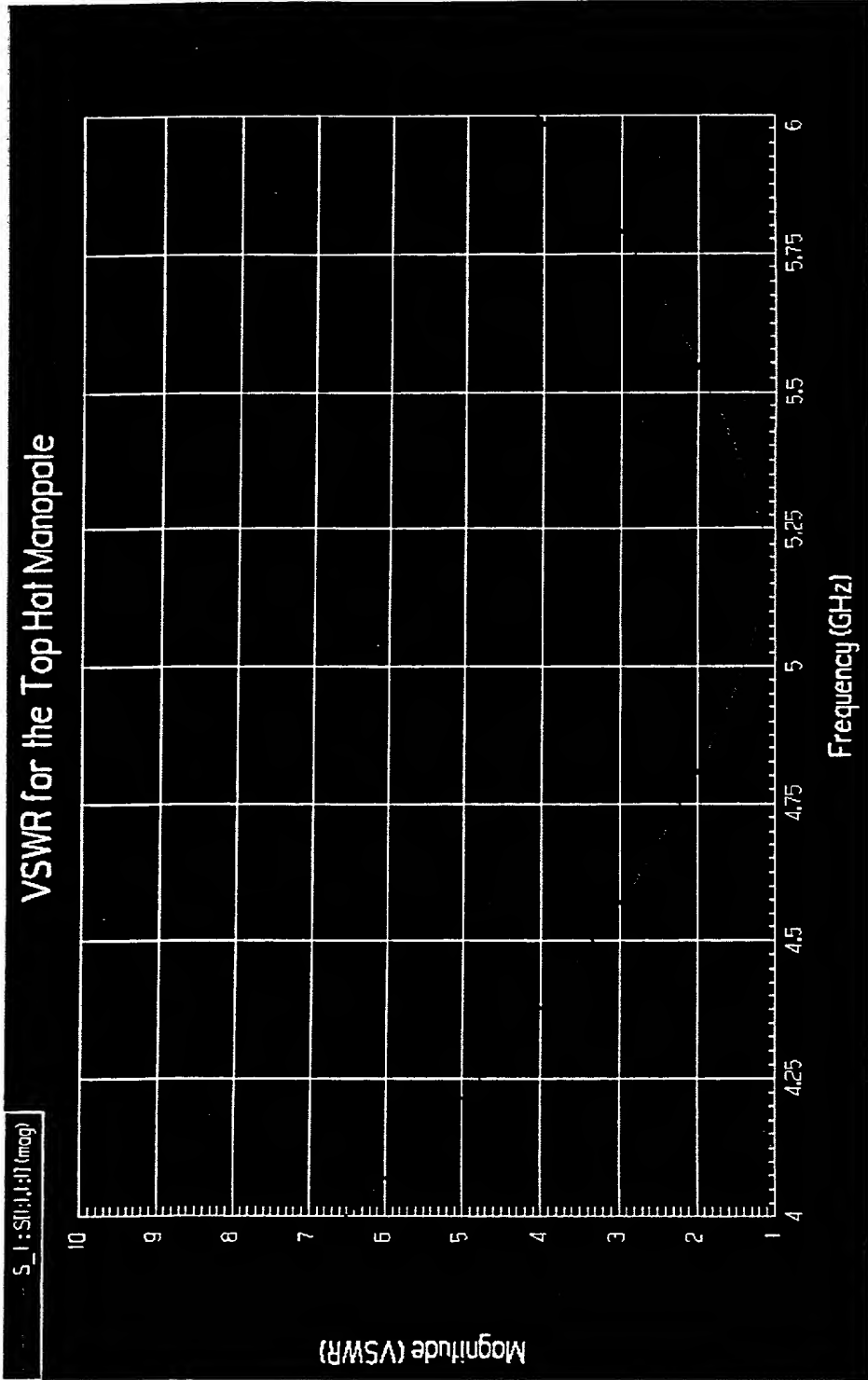


FIG. 37